

10/533,951

RECEIVED
CENTRAL FAX CENTER
APR 03 2008**REMARKS**

These amendment and remarks are filed in response to the final rejection mailed January 3, 2008. For the following reasons, the final rejection of January 3, 2008 should be withdrawn because it is improper, prosecution reopened, this amendment entered, the application allowed, and the application passed to issue. No new matter is introduced by this amendment. The amendments to claims 1 and 3 are supported by Example 1 on page 7 of the specification, which clearly teaches that only wax is impregnated into the carbon rod.

Claims 1-5 are pending in this application. Claims 1-5 have been rejected. Claims 1 and 3 have been amended in this response.

Request for Reconsideration of Improper Final Rejection

The final Office Action mailed January 3, 2008 is improper. First, reopening prosecution of an application after the filing of an appeal brief requires the approval of a Supervisory Patent Examiner (SPE) (MPEP § 1207.04). Primary Examiner Dove is not a SPE and there is no indication in the final Office Action that Examiner Dove was an acting SPE. Second, an office action that reopens prosecution can be made final if the new ground of rejection was (A) necessitated by amendment, or (B) based on information presented in an Information Disclosure Statement under 37 C.F.R. 1.97(c) where no statement under 37 C.F.R. 1.97(e) was filed (MPEP § 1207.04). As neither conditions (A) nor (B) apply, the Primary Examiner was not justified in making the office action final. Applicant respectfully requests that finality be withdrawn, prosecution reopened, and the present amendment be entered and considered.

Claims Analysis

The Examiner's claims analysis is traversed. The Examiner incorrectly asserted that Tables 1-3 of the present specification indicates four examples of the instantly claimed invention

10/533,951

that have 0 % of a hydrocarbon compound having a MW of not greater than 310. Contrary to the Examiner's assertion, Example 1 clearly teaches 0.5 wt.% hydrocarbon.

Claim Rejections Under 35 U.S.C. §§ 102 and 103

Claims 1 and 4 were rejected under 35 U.S.C. 102(b) as anticipated over Nobuaki (JP 3-297063).

Claim 2 was rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Nobuaki.

Claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Nobuaki in view of Yukifumi et al. (JP 7-272702) as evidenced by Nagasawa et al. (US 4,157,317).

These rejections are traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the present invention, as claimed, and the cited prior art.

An aspect of the invention, per claim 1, is a positive electrode current collector for a manganese dry battery comprising a carbon rod and paraffin wax containing a hydrocarbon compound having a molecular weight of 300 to 500 impregnated in the carbon rod. Only the paraffin wax is impregnated into the carbon rod. The paraffin wax contains a hydrocarbon compound having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt%.

Another aspect of the invention, per claim 3, is a positive electrode current collector for a manganese dry battery comprising a carbon rod and paraffin wax containing a hydrocarbon compound having a molecular weight of 300 to 500 impregnated in the carbon rod. Only the paraffin wax is impregnated into the carbon rod. The paraffin wax contains a hydrocarbon

10/533,951

compound having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt%. The carbon rod has a density of 1.50 to 1.75 g/cm³.

The Examiner asserted that Nobuaki discloses a dipping treatment for a carbon rod in a manganese dry cell. Nobuaki teaches paraffin wax with a molecular weight of 300 to 500 or a micro-wax consisting of isoparaffin and cycloparaffin with a molecular weight of 35 to 60. The Examiner alleged that the abstract describes paraffin wax consisting of 300-500 molecular weight and 0 wt. % of hydrocarbon with molecular weight of not greater than 310. The Examiner erroneously asserted that claim 2 is a product-by-process claim.

The Examiner averred that Nobuaki substantially discloses the elements of claim 3 but does not teach the density of the carbon rod. The Examiner alleged that Yukifumi et al. disclose that a carbon rod of high density is used so that it is hard and cushioning is not a consideration. The Examiner concluded that the claimed carbon rod density would have been obvious because discovering the optimum value only involves routine skill in the art. Nagasawa et al. teach that when the density is less than 1.6 g/cm³ the carbon rod would not have sufficient strength.

Nobuaki does not anticipate or suggest the claimed positive electrode current collector or manganese dry battery because Nobuaki does not teach or suggest only the paraffin wax is impregnated into the carbon rod and the paraffin wax containing a hydrocarbon compound has a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt%, as required by claims 1 and 3.

It is apparent that the Examiner mistakenly assumes that because (A) there is no teaching of a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt.% in Nobuaki et al. then it must mean (B) that 0 wt. % of the Nobuaki et al. material has a molecular

10/533,951

weight of not greater than 310. As one of ordinary skill in this art with a high school understanding of logic would realize, if A then B does not necessarily follow.

Nobuaki does not suggest that only the paraffin wax is impregnated into the carbon rod, and the paraffin wax contains hydrocarbon compounds having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt.%, as required by claims 1 and 3. Nobuaki teaches impregnating the carbon rod with a mixture of paraffin wax and crystalline polyolefin resin (see Nobuaki Examples). Therefore, Nobuaki does not disclose that only the paraffin wax is impregnated into the carbon rod, as required by claims 1 and 3.

In addition, the present invention is further distinguishable in view of the **evidence of unexpected results**. As shown in **Table 3** of the present specification (page 12) an **unexpected improvement** in discharge capacity after high temperature storage is obtained when paraffin wax with the claimed molecular weight is impregnated in the carbon rod. It is apparent that the Examiner has ignored the evidence of unexpected results, as the Examiner has not commented on the evidence of unexpected results in Table 3.

It is noted that the Examiner simply discounted the features of the present invention by asserting that "it would have been obvious . . . to choose the instantly claimed value through process optimization" and "that discovering the optimum or workable values involve only routine skill in the art" (page 4 of January 3, 2008 Office Action).

Accordingly, though the Examiner admits Nobuaki does not disclose these features, the Examiner alleged that they would have been obvious based on process optimization. However, it is respectfully submitted that the Examiner's reliance on routine skill in the art to allege obviousness of the claimed features is in legal error. The "process optimization" basis for an obviousness rejection can only be relied upon by the Examiner if the *prior art* first recognizes

10/533,951

the modified parameter as a result-effective variable. In the instant case, only Applicant has recognized and considered the importance of the claimed parameter (e.g., amount of paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310), as a result-effective variable, so that the Examiner can not rely on the obviousness-theory of "process optimization" as a basis for asserting obviousness thereof.

As taught in MPEP § 2144.05(II)(B) under the heading "Only Result-Effective Variables Can Be Optimized":

A particular parameter must first *be recognized* as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. (citing *In re Antonie*, 195 USPQ 6 (CCPA 1977)) (emphasis added).

In the instant case, the cited prior art is silent regarding amount of paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310, as achieving a recognized result; so that there is no basis for alleging obviousness thereof based on process optimization. Accordingly, it is respectfully submitted that the claimed features would not have been obvious in view of Nobuaki because the cited prior art does not recognize the claimed parameters as achieving a recognized result.

Specifically, Nobuaki fails to satisfy the legal requirement for the prior art to first recognize the amount of paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310 as a result-effective variable. Namely, Nobuaki is silent as to the amount of paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310 achieving a recognized result. Accordingly, the cited prior art does not support the Examiner's allegation that the optimum values of the parameter can be characterized as process optimization.

10/533,951

Moreover, the features of the present invention recited in claims 1 and 3 provide **new and unexpected results** in relation to improved discharge capacity after high temperature storage obtained when paraffin wax with the claimed molecular weight is impregnated in the carbon rod, as described in the present specification (see Table 3). Only Applicant has recognized and considered the parameter (e.g., the amount of paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310) in relation to discharge performance of manganese dry batteries to achieve the disclosed results described in the present specification. Nobuaki is completely silent as to the improvement in discharge performance achieved by the present invention, and does not enable process optimization of the claimed parameter.

The factual determination of lack of novelty under 35 U.S.C. § 102 requires the disclosure in a single reference of each element of a claimed invention. *Helifix Ltd. v. Blok-Lok Ltd.*, 208 F.3d 1339, 54 USPQ2d 1299 (Fed. Cir. 2000); *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1017 (Fed. Cir. 1994); *Hoover Group, Inc. v. Custom Metalcraft, Inc.*, 66 F.3d 399, 36 USPQ2d 1101 (Fed. Cir. 1995); *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992); *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051 (Fed. Cir. 1987). Because Nobuaki does not disclose only the paraffin wax is impregnated into the carbon rod and the paraffin wax containing a hydrocarbon compound has a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt%, as required by claim 1, Nobuaki does not anticipate claim 1.

Obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of

10/533,951

ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Fine*, F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). There is no suggestion in Nobuaki, Yukifumi et al., and Nagasawa et al. to modify the positive electrode current collector of Nobuaki so that only the paraffin wax is impregnated into the carbon rod and the paraffin wax containing a hydrocarbon compound has a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt%, as required by claims 1 and 3, nor does common sense dictate the Examiner-asserted modification. The Examiner has not provided any evidence that there would be any obvious benefit in making the asserted modification of Nobuaki. *See KSR Int'l Co. v. Teleflex, Inc.*, 500 U.S. ____ (No. 04-1350, April 30, 2007) at 20.

In rejecting a claim under 35 U.S.C. § 103, the Examiner is required to discharge the initial burden by, *inter alia*, making "clear and particular" factual findings as to a specific understanding or specific technological principle which would have realistically impelled one having ordinary skill in the art to modify an applied reference to arrive at the claimed invention based upon facts, -- not generalizations. *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 57 USPQ2d 1161 (Fed. Cir. 2000); *Ecolochem Inc. v. Southern California Edison, Co.*, 227 F.3d 1361, 56 USPQ2d 1065 (Fed. Cir. 2000); *In re Kotzab*, *supra*; *In re Dembiczak*, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999). That burden has not been discharged, as the Examiner has provided no factual basis in Nobuaki, Yukifumi et al., and Nagasawa et al. to modify Nobuaki so that only the paraffin wax is impregnated into the carbon rod and the paraffin wax containing a hydrocarbon compound has a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt%, as required by claims 1 and 3. Apparently, the Examiner has relied on improper hindsight reasoning in reaching the conclusion of obviousness.

10/533,951

The only teaching of only the paraffin wax being impregnated into the carbon rod and the paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt%, is found in Applicant's disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must not be based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Nobuaki in view of Yukifumi et al. as evidenced by Nagasawa et al. and further in view of Kenichi et al. (JP 5-290820). This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

The Examiner averred that Nobuaki and Yukifumi et al. substantially disclose the claim elements but do not teach the polybutene sealant. The Examiner alleged that Kenichi et al. disclose a polybutene sealant and that it would have been obvious to incorporate a polybutene sealant into the manganese dry cell of Nobuaki and Yukifumi et al. to prevent liquid leakage.

The combination of Nobuaki, Yukifumi et al., Nagasawa et al., and Kenichi et al. do not suggest the claimed manganese dry battery because Kenichi et al. do not cure the deficiencies of Nobuaki, Yukifumi et al., and Nagasawa et al. Kenichi et al. do not suggest only the paraffin wax is impregnated into the carbon rod and the paraffin wax containing a hydrocarbon compound has a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt%, as required by claims 1 and 3.

The dependent claims are allowable for at least the same reasons as the respective independent claims from which they depend, and further distinguish the claimed positive electrode current collector and manganese dry battery.

RECEIVED
CENTRAL FAX CENTER

10/533,951

APR 03 2008

In view of the above amendments, remarks, and request for reconsideration of an improper final rejection, Applicant submits that this amendment should be entered and considered, the application allowed, and passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP

Bernard P. Codd
Bernard P. Codd
Registration No. 46,429

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 BPC:MWE
Facsimile: 202.756.8087
Date: April 3, 2008

Please recognize our Customer No. 20277
as our correspondence address.